Amendments to the Specification:

Please replace the paragraph starting at page 26, line 34 with the following paragraph:

In one embodiment of the invention, the placenta can be populated with any particular cell type and used as a bioreactor for *ex vivo* cultivation of cells, tissues or organs. Such cells, tissue or organ cultures may be harvested used in transplantation and *ex vivo* treatment protocols. In this embodiment, the placenta is processed to remove all endogenous cells and to allow foreign (*i.e.*, exogenous) cells to be introduced and propagated in the environment of the perfused placenta. Methods for removal of the endogenous cells are well-known in the art. For example, the perfused placenta is irradiated with electromagnetic, UV, X-ray, gamma- or beta-radiation to eradicate all remaining viable, endogenous cells. In one embodiment, sub-lethal exposure to radiations *e.g.*, 500 to 1500 CGγ can be used to preserve the placenta but eradicate undesired cells. For international standards on lethal v. non-lethal ionizing radiation, [[(]]*see* Chapter 5 "Biophysical and Biological Effects of Ionizing Radiation" from the United States Department of Defense. The foreign cells of interest to be propagated in the irradiated placental bioreactor are then introduced, for example, by vascular perfusion or direct intra-parenchymal injection.